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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,880	02/13/2002	Yong Wang	13199-B	8827

7590

07/13/2005

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EXAMINER

JOHNSON, EDWARD M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/076,880

Applicant(s)

WANG ET AL.

Examiner

Edward M. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5-26 and 31-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-23,26 and 31-34 is/are rejected.
- 7) ☒ Claim(s) 24 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 5-7, 9-15, 19-20, and 33-34 rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wieland et al. 6,413,449.

Regarding claim 1, Wieland '449 discloses a catalyst comprising palladium/zinc and zinc oxide deposited on a metal oxide (see abstract), wherein the catalyst has a hydrogen productivity of more than 20, and up to 60,  $\text{Nm}^3/\text{kg}_{\text{cat}}\cdot\text{h}$  (see column 5, lines 8-15), which would inherently encompass the claimed productivity, since the claimed ingredients and materials are also disclosed.

When the examiner has reason to believe that the functional language asserted to be critical for establishing novelty in

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claimed subject matter may in fact be an inherent characteristic of the prior art, the burden of proof is shifted to Applicant to prove that the subject matter shown in the prior art does not possess the characteristics relied upon. In re Fitzgerald et al. 205 USPQ 594.

Regarding claims 5 and 6, Wieland '449 discloses dispersing support and zinc oxide, adding acidic palladium, and adding a base (see column 7, lines 5-13), followed by redispersion and coating with the catalyst material (see column 7, lines 22-24), wherein palladium and zinc that has passed into solution are precipitated together (see column 7, lines 37-40).

Regarding claim 7, Wieland '449 discloses oxide of aluminum, titanium, and zirconium (see abstract).

Regarding claim 9, Wieland '449 discloses palladium and zinc that has passed into solution are precipitated together (see column 7, lines 37-40).

Regarding claim 10, Wieland '449 discloses immersion in a solution of only zinc nitrate (see column 10, lines 58-59).

Regarding claim 11, Wieland '449 discloses 768.5 g zinc nitrate in one liter of water, which is about 1M zinc.

Regarding claim 12, Wieland '449 discloses dispersing support and zinc oxide, adding acidic palladium, and adding a

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base (see column 7, lines 5-13), followed by redispersion and coating with the catalyst material (see column 7, lines 22-24).

Regarding claim 13, Wieland '449 discloses neutralizing the acid solution, which would require at least a neutral pH of 7 (see column 7, lines 11-12).

Regarding claim 14, Wieland '449 discloses calcining at 300-550 degrees C (see column 7, lines 25-28).

Regarding claims 15 and 33-34, Wieland '449 discloses depositing Pd as a solution (see Examples) and calcining at 300-550 degrees C (see column 7, lines 25-28), which overlaps Applicant's claimed range with sufficient specificity.

Regarding claims 19-20 and 26, Wieland discloses more than 20, and up to 60,  $\text{Nm}^3/\text{kg}_{\text{cat}}\cdot\text{h}$  (see column 5, lines 8-15), which would inherently be characterizable in different units of measurement.

Regarding claim 23 arranging on a surface shell about 250 microns thick (see Example 2).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior

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art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8, 17-18, 21, 31-32 rejected under 35 U.S.C. 103(a) as being unpatentable over Wieland '449.

Wieland fails to disclose large pores.

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use large pores in the support of Wieland because Wieland discloses pore volume impregnation (see Examples) and a specific surface area of 140 square meters per gram (see column 8, line 22), which would obviously, to one of ordinary skill, suggest large pores in order to achieve the discloses surface area.

Regarding claims 17-18 and 21, Wieland discloses 82.6% alumina and 11.6% ZnO.

Wieland fails to disclose 1-15% Pd.

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use 1-15% Pd because Wieland discloses 5.8% PdZn alloy, which would obviously, to one of ordinary skill, at least suggest an alloy thereof causing between 2% and 5% Pd to be present.

Regarding claim 31, Wieland fails to disclose the Pd depositing subsequent to the drying step.

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It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to deposit the Pd after drying because Wieland specifically discloses that it is known to preliminarily coat the support with a pretreatment of zinc followed by drying (see column 3, lines 26-31), which would obviously, to one of ordinary skill, suggest pre-coating with zinc, drying, then depositing Pd.

Regarding claim 32, Wieland '449 discloses calcining at 300-550 degrees C (see column 7, lines 25-28), which overlaps Applicant's claimed range.

5. Claims 16 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wieland '449 as applied to claims 15 and 21 above, and further in view of Feinstein et al. US 4,177,219.

Regarding claims 16 and 22, Wieland fails to disclose Ru.

Feinstein discloses 0.5% Ru (see Table III and claims 3 and 6).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the 0.5% Ru of Feinstein in the reforming catalyst of Wieland because Feinstein discloses his 0.5% Ru in a reforming catalyst (abstract, summary) for high scission activity of catalysts (see column 8, lines 20-22) and effective conversion and selectivity (see column 9, lines 35-43).

***Allowable Subject Matter***

6. Claims 24-25 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: A metal oxide layer of a thickness less than 40 microns and the large pore support is foam or felt in the catalyst of the instant claim 24 would not have been obvious to one of ordinary skill in the art at the time the invention was made. 50% of the catalyst's pore volume being composed of pores in the size range of 0.3 to 200 microns in the catalyst of the instant claims 25 also would not have been obvious to one of ordinary skill in the art at the time the invention was made.

***Response to Arguments***

8. Applicant's arguments filed 6/18/04 have been fully considered but they are not persuasive.

It is argued that Applicants have discussed and distinguished this reference... the application. This is not persuasive because Applicant's declaration is specific to certain catalysts under certain process conditions, none of which are specified in the claim. Therefore, the information



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contained in the declaration is not commensurate in scope with the claims.

It is argued that claim 5 recites that the Pd is deposited after... increase pH. This is not persuasive because Wieland discloses discloses dispersing support and zinc oxide, adding acidic palladium, and adding a base (see column 7, lines 5-13), followed by redispersion and coating with the catalyst material (see column 7, lines 22-24), which anticipates the instant claim 5. And, in any case, the claimed steps do not explicitly set forth that the steps are limited to in order according to each previous step. It is noted that the features upon which applicant relies (i.e., steps requiring a specific order) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that the method of claim 5 is further patentable over Wieland... comprising dissolved zinc. This is not persuasive because Wieland discloses immersing the support in a solution containing zinc (see Example 1).

It is argued that the dependent claims... recited therein. This is not persuasive because the zinc solution is not discloses as partially dissolved and would inherently be

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completely dissolved, since it is a zinc solution. Applicant refers to partially dissolved zinc oxide powder. However, Example 1 discloses a solution of zinc nitrate, which anticipates the claimed completely dissolved zinc.

It is argued that claims 16 and 22 are additionally patentable because ... Wieland and Feinstein. This is not persuasive because Applicant appears to merely point out that the references are different, which by itself is not a showing of insufficient motivation. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the 0.5% Ru of Feinstein in the reforming catalyst of Wieland because Feinstein discloses his 0.5% Ru in a reforming catalyst (abstract, summary) for high scission activity of catalysts (see column 8, lines 20-22) and effective conversion and selectivity (see column 9, lines 35-43).


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**Conclusion**

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 571-272-1352. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Edward M. Johnson  
Examiner  
Art Unit 1754

EMJ